UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/907,513	07/17/2001	Werner Kerzendorf	U 013457-4	5747

7590	05/03/2004

Ladas & Parry
26 West 61 Street
New York, NY 10023

EXAMINER
HARTMAN JR, RONALD D

ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _23 October 2003_.
2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _9-28_ is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☐ Claim(s) _9-10,13-20,23-28_ is/are rejected.
7)☒ Claim(s) _11,12,21 and 22_ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☒ All   b)☐ Some * c)☐ None of:
      1.☒ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _5_.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-8 were canceled and claims 9-28 were added.

Priority

2.   Applicant cannot rely upon the foreign priority papers to overcome this rejection

because a translation of said papers has not been made of record in accordance with

37 CFR 1.55. See MPEP § 201.15.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 9-10,13-20 and 23-28 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Padilla et al., U.S. Patent No. 6,125,235, in view of Locke, U.S.

Patent Application Publication No. U.S. 2002/0099585 A1.

As per claims 9 and 19, Padilla et al teaches a method wherein obtaining a

measured value from a sensor system, establishing a cost function which indicates

deviations of the measured value from calibration functions as a function of the

unknown state variable, establishing relevant state region from the measured value,

establishing a selection of approximation regions for at least one predetermined

approximation function of the cost function, determining all local minimum in

approximation regions such that each minimum is determined in a respective region by

a sum of a start vector and a weighted difference of the measured value from calibration

values obtained from the calibration function as a function of said start vector, and

determining a global minimum by comparing the local minimum wherein the global

minimum represents the state variable of the system are all features that are adequately

contemplated through the use of a computer implemented simulated annealing, using a

gradient descent vector analysis, computation technique. This system is shown, for

example, by way of Figures1-4 and C6 L65-C8 L55 and C12 L35-C13 L18 of the Padilla

et al reference.

As per claims 9 and 19, Padilla et al does not specifically teach a sum of the

approximation regions covering the entire relevant state region. However, since the

objective of Padilla is to minimize the overall cost function, wherein there may exist

more than one local minimum, an adequate representation of the state region is

necessary and therefore searching the entire state region would be obvious since it

would provide the ability to be certain that all the local minimums are retrieved.

However, this methodology of splitting the cost function into separate

approximation regions is taught by Locke, U.S. Patent Application Publication No. U.S.

2002/0099585 A1 (See Figure 2) and its inclusion would have been obvious since both

systems are from analogous art in that they both aim to minimize cost functions so that

global optimization may be effectively realized, thus increasing the overall efficiency of global optimization techniques.

As per claims 10 and 20, Padilla teaches the cost function producing a weighting of deviations of the measured value from the calibration values (e.g. C7 L1-11).

As per claims 13 and 23, Padilla teaches a start vector being selected randomly in an approximation region (e.g. Figure 3 "Initial Guess (A4)").

As per claims 14-15 and 24-25, quadratic cost functions and a feature whereby only one minimum is found in each region would be obvious since a two dimensional surface approach is beneficial when dealing with state space regions so that local minimums can be effectively located and since reducing the amount of minimums to one for each region would obviously reduce the amount of calculations needed for each region since as soon as the first minimum is found, the calculations for this particular region are discontinued and calculations for another region would take place. This has the obvious effect of increasing the overall efficiency of calculations and leads to a greater global optimization technique. This obvious variation would therefore have been obvious to one of ordinary skill in the art at the time the invention was made.

As per claims 16-17 and 26-27, Padilla teaches the determination of minima's by way of an analytical recursive method (e.g. C13 L44-53).

As per claim 18 and 28, an arithmetic unit, for carrying out the method steps, is inherent to Padilla.

Allowable Subject Matter

4.   Claims 11-12 and 21-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As per claims 11 and 21, the prior art of record fails to teach, or adequately suggest a method for determining the state of a system wherein the system is an air data system of an airplane, wherein the cost function is defined specifically defined as claimed, in combination with the other claimed features and or limitations as claimed by the claimed invention.

As per claims 12 and 22, the prior art of record fails to teach the determination of local minimums using the claimed expressions, in combination with the other claimed features and or limitations as claimed by the claimed invention.

Conclusion

5.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the
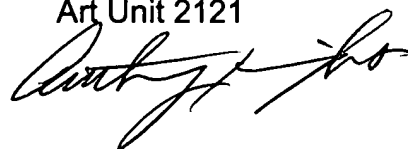
shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Ronald D Hartman Jr. whose telephone number is 703-

308-7001. The examiner can normally be reached on Mon. - Fri., 11:30 am - 8:00 pm

EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Anthony Knight can be reached on 703-308-3179. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Ronald D Hartman Jr.
Examiner
Art Unit 2121

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